

**KAIROA, A NEW GENUS OF MONIMIACEAE
FROM PAPUA NEW GUINEA**

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SUMMARY

A new genus, *Kairoa*, of the *Monimiaceae* (*Mollinedeae*) from the Huon Gulf region of Papua New Guinea is described. It comprises the single species, *K. suberosa*.

Since the work of Perkins early in this century, few publications have dealt with the taxonomy of the *Monimiaceae* from Papua New Guinea. In view of the intense collecting which has occurred since the time of Perkin's studies, it is to be expected that several new taxa will require description.

A small tree or shrub frequent in lowland forest around the Huon Gulf bears male flowers unlike other *Monimiaceae* of New Guinea. The female flowers shed their perianth in the form of a calyptra, so this plant should evidently be placed in the Tribe *Mollinedieae*. The male flowers, with numerous stamens distributed over the open receptacular cup and with anther locules opening by longitudinal slits, resemble those of some species of *Mollinedia* rather closely, but the eight perianth segments (in two double pairs) are distinctive. Another distinction from the New World genus is that the Huon Gulf plants are monoecious, whereas all species of *Mollinedia* are said to be dioecious (Perkins, 1925). The only genera of the *Mollinedieae* occurring in the Australasian — Papuan region in which the stamens are distributed over the receptacle are *Wilkiea* and *Austromatthaea*. In *Wilkiea* the arrangement of the tepals of the male flower is similar to that of the Huon Gulf plant (though usually only six tepals are present) but the receptacle remains closed except for the small ostiole — it does not split open to form a bowl-shaped flower. Other differences between *Wilkiea* and the Huon Gulf plant are that the stamens are much less numerous and that their anthers open by a single transverse slit. The male flowers of *Austromatthaea* have much the appearance of those of the Huon Gulf plant, since the stamens have anthers opening by two slits and are exposed at anthesis by the spreading tepals. However, the construction of the receptacles of the flowers is different. In *Austromatthaea* there are only four massive tepals which are separated by deep sinuses. In the Huon Gulf plant, on the other hand, the star-shaped male flower arises by a splitting of an initially globose receptacle with eight very minute tepals. The male flowers of both *Wilkiea* and *Austromatthaea*, therefore, differ significantly from those of the Huon Gulf plant, so that a new genus is necessary.

KAIROA Philipson *gen. nov.*

Flores masculi primo globosi, deinde in formam stellae conversi; tepala 8 (4+4); stamina per receptaculum dispersa, numerosa, antherae per duas rimas longitudinales dehiscentes. Flores feminei globosi, superior pars receptaculi calyprata; carpella numerosa, stylus brevis. Achenia in receptaculo amplificato carnosio sessilia. — **T y p u s:** *Kairoa suberosa* Philipson.

Flowers monoecious. *Receptacle* of the male flower at first globose with a small ostiole bounded by 8 tepals (in two double pairs), at anthesis splitting to form an open bowl-shaped flower with 4–6 radiating lobes, fleshy. Stamens very numerous, inserted over the surface of the receptacle; anthers opening by two longitudinal slits; filament very short. Receptacle of the female flower oblate, with an ostiole bounded by 4 tepals, splitting into broad segments; the upper part of the receptacle abscising by a circular split after anthesis. *Carpels* numerous, sessile, with a very short style. *Fruits* numerous, ovoid, sessile on an enlarged fleshy receptacle. Small tree or sparsely branched shrub with opposite toothed leaves, and flowers in axillary fascicles.

D i s t r i b u t i o n: Papua New Guinea: Morobe and Northern Provinces, from Finschhafen to Tufi Districts.

E c o l o g y: Understorey of rain forest.

N o t e: The genus is named after Mr. Aubita Kairo, a member of the staff of the Papua New Guinea Forestry College, Bulolo, in whose company I first collected this species.

Kairoa suberosa Philipson, *sp. nov.*

Frutex vel arbor parva cortice suberosa. Folia coriacea, oblonga, elliptica vel lanceolato-oblonga, ad 45 × 17 cm, pubescentia vel glabra, paucis vel multis acutis dentibus in margine. Flores in fasciculis axillaribus dispositi, monoici. — **T y p u s:** *Philipson & Katik 3684* (L.).

Shrub or small tree with stout terete branches, bark becoming corky. *Leaves* opposite; petiole stout, 5–15 mm long; lamina coriaceous, up to 45 × 17 cm, oblong, elliptic or lanceolate-oblong; base cordate, truncate or cuneate, apex narrowed to an acute apex; lower surface with dense or sparse pubescence or glabrous; margin with few to many sharp teeth; mid-rib prominent; secondary and tertiary veins forming a distinct reticulation. *Inflorescence* of axillary fascicles which continue to appear from successive buds at older nodes; fascicles with a short peduncle bearing crowded minute bracts, the lower sterile, the upper with flowers in their axils. *Pedicels* of male flowers fleshy (when fresh) about 15–20 mm long, sometimes with solitary or paired bracteoles, expanded above; receptacle at first globose with a terminal depression and an ostiole with 8 tepals in two double pairs, expanding to c. 18 mm diam. before opening by 4–6 radial splits to form a star-shaped flower with the stamens fully exposed. *Stamens* numerous (over 100), inserted over the lower half of the receptacle, filament short; anthers to 1 mm long, opening by two longitudinal slits. *Pedicels* of female flowers shorter (c. 5 mm at anthesis); receptacle globose, smaller (c. 8 mm diam.), tepals 4, the upper half of the receptacle becoming detached after anthesis by a circular scar. *Carpels* numerous (ca. 50 or more), sessile on the lower half of the receptacle, with a short, blunt style. The receptacle becoming enlarged and fleshy in fruit; achenes sessile, numerous, ovoid, 20–24 × 11–14 mm.

Papua New Guinea. **Morobe Province:** Finschhafen District: Sattelberg 900 m *Clemens* 795; Sambieng, 600 m, *Katik and Croft Lae* 70740. Lae District: Buso River, 15 m, *Hartley* 12358; 60 m, *Hartley* 9932; 100 m, *Philipson and Katik* 3682, 3683; Lae, 30 m, *Womersley* NGF 9086; Bumbu, 60 m, *Henty* NGF 14319, NGF 14850; south of Boana, 900 m, *Conn, Kairo and Masapuhafo* 93; Wampit, 200 m, *Philipson and Katik* 3681; Oomsis, 30 m, *Streimann and Kairo* NGF 27969; 60 m, *Kairo and Streimann* NGF 30703, *Streimann Lae* 51926; 100 m, *Philipson and Katik* 3680; 200 m, *Philipson and Katik* 3684. Lasanga Island, 70 m, *Streimann* NGF 44173. **Mumeng District:** Wampit River, 500 m, *Philipson and Kairo* 3624, 3626. **Wau District:** south east of Garaima, 1200 m, *Hartley* 12697. — **Northern Province:** Tufi District: Mayu, 350 m, *Leach* NGF 3329, *Streimann and Katik* NGF 28645, *Katik Lae* 56322.

Ecology: Locally frequent in the understorey of lowland rain forest and occasionally ascending into lower montane forest to 1200 m altitude with *Castanopsis* and *Lithocarpus* dominant.

Notes: The specific epithet refers to the thick deeply fissured bark of the older stems, by which feature this species can most readily be detected in the field. The stiff leaves, which are usually sharply toothed, are also distinctive. The male flowers are soft, fleshy, cream coloured often flecked with violet. They are rather large for the family. The succulent, fleshy fruiting receptacle is orange and the ripe achenes are black and shining.

Very little has been added to our knowledge of the floral biology of the *Monimiaceae* since Perkins (1925) wrote 'Über die Bestäubungsverhältnisse bei den *Monimiaceae* is leider absolut nichts bekannt...'. Very recently two most interesting publications have indicated that an interest in this family is emerging and that significant results are to be expected. Gottsberger (1977) reports the pollination of the Neo-tropical genus *Mollinedia* with urceolate female flowers, by gall thrips in a manner somewhat parallel to the pollination of *Ficus* by wasps. Endress (1978) extends the previous report of receptacular 'stigmas' in *Hennecartia* (Perkins, 1925) by describing a 'hyperstigma' in *Tambourissa*.

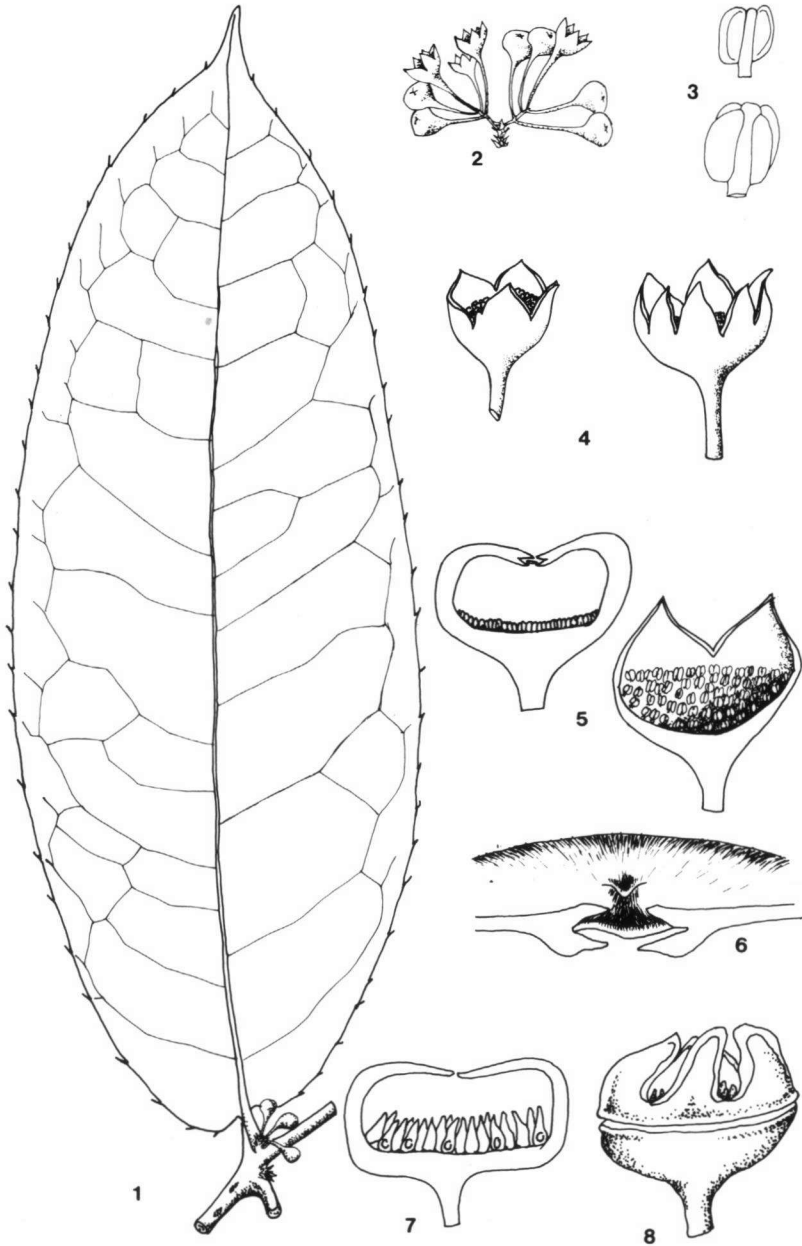
Galls of thrips have been observed in the receptacles of *Kairoa*, and also in those of *Levieria*. It seems probable that pollination in these New Guinean genera (in which the female flowers are urceolate and the male flowers open, as in *Mollinedia*) may occur by a process similar to that reported by Gottsberger. On the other hand, since many flowers mature with no galls present, pollination may well be affected by alternative means. Clearly, some efficient mechanism operates, because even in the dioecious genus *Levieria* with inconspicuous flowers widely spaced in the understorey of rain forest, fruit-set is abundant.

ACKNOWLEDGEMENT

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Figs. 1–8. *Kairoa suberosa*. 1. leaf with axillary inflorescence, $\times \frac{1}{2}$ (Hartley 12697); 2. male inflorescence, $\times \frac{1}{2}$ (NGF 44173); 3. stamens, $\times 20$ (NGF 14850); 4. two male flowers, $\times 1$ (NGF 44173, Philipson 3684); 5. male flowers in LS, before and after splitting of the receptacle, $\times 1\frac{1}{2}$ (Philipson 3681, NGF 44173); 6. ostiole of male flower, the equal pairs of tepals cut across, one unequal pair visible, $\times 12$ (Philipson 3684); 7. female flower in LS, $\times 2\frac{1}{2}$ (Lae 56322); 8. female flower after anthesis, the upper part of the receptacle abscising, $\times 1\frac{1}{2}$ (Philipson 3684).

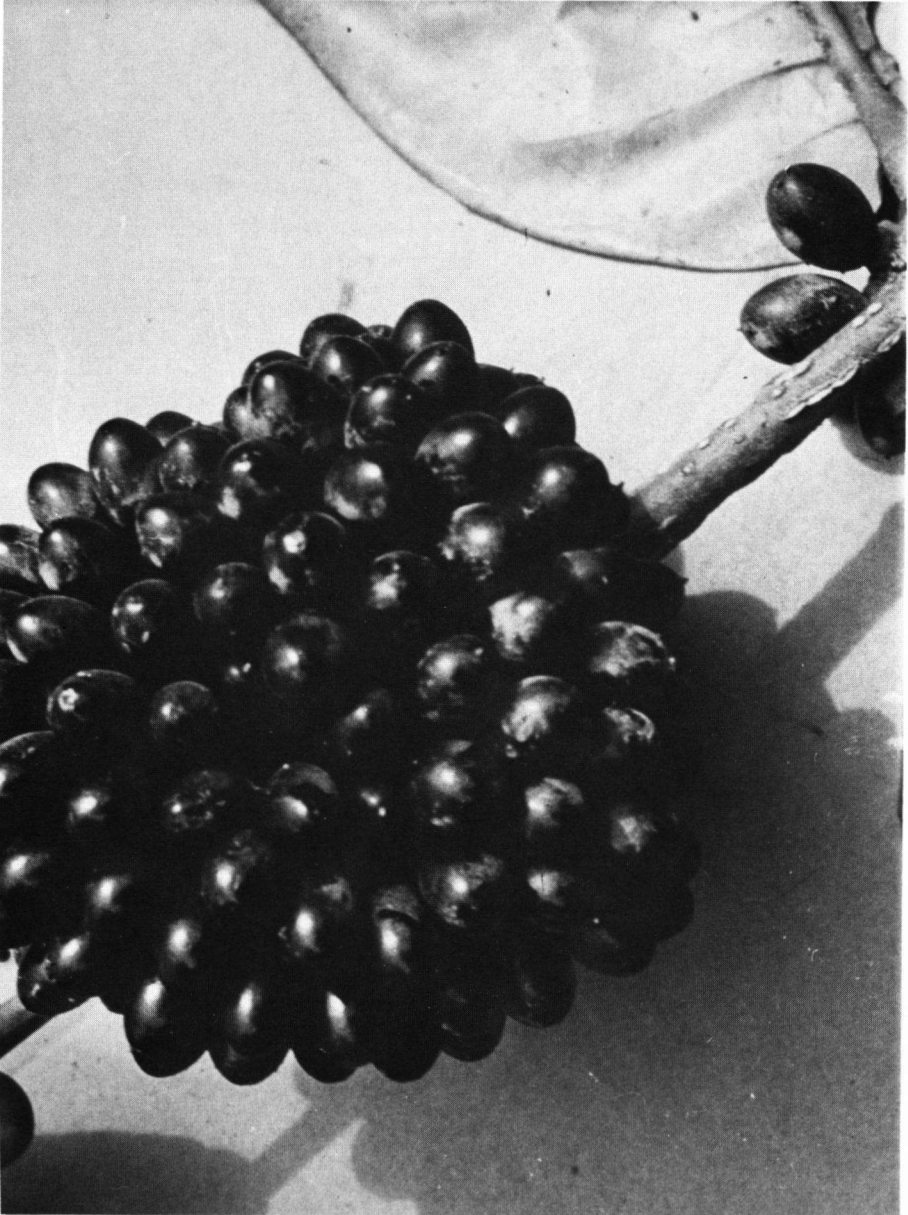


Fig. 9. *Kairoa suberosa*: a group of ripe infructescences (the fruits in this cluster were borne on three closely associated receptacles), $\times 1$ (Philipson 3626).

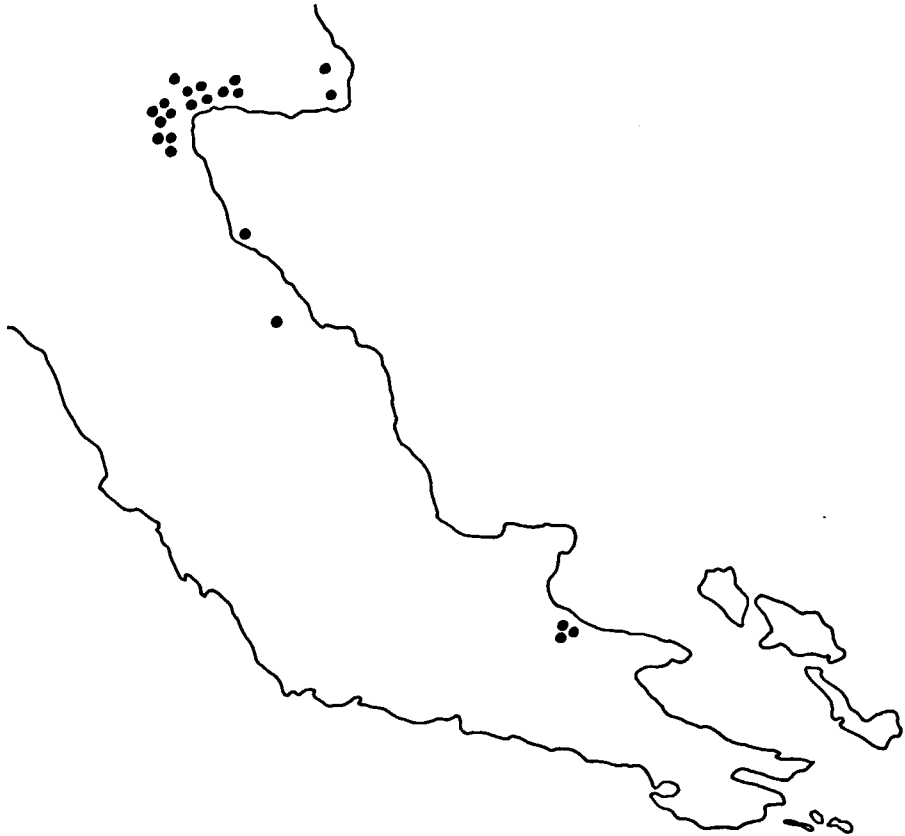


Fig. 10. Map of known localities of *Kairoa suberosa*.